

## What is Claimed is:

## 1. [Amended] A heat engine in combination:

- CI
- a) a plurality of heating side expansion chambers and cooling side expansion chambers, positioned on opposite sides of a circle, wherein said cooling side expansion chambers lag said heating side expansion chambers for expanding and contracting fluids;
  - b) a first wall communicating with said heating side expansion chamber for pushing when a second fluid expands and a second wall communicating with said cooling side expansion chamber for pulling when a first fluid contracts;
  - c) a means for shifting a weight off-center balance when said first wall pushes said second moment element and a second wall pulls said first moment element, allowing gravity to rotate the apparatus about the axis of said circle;
  - d) a heat source for expanding said fluids;
  - e) a cooling source for contracting said fluids; and
  - f) a structure for supporting said expansion chambers, heat and cooling source, and providing an output motion in a particular direction from the rotation of said apparatus.

2. The heat engine as claimed in claim 1, wherein said heat is from a plurality of sources.

3. [Deleted]

4. [Deleted]

5. [Deleted]

6. The heat engine as claimed in claim 1, wherein said expansion chamber is selected from the group consisting of a bladder, diaphragm, and membrane.

7. The heat engine as claimed in claim 1, wherein said expansion chamber is a plurality of shapes.
8. [Deleted]
9. [Deleted]
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- 02 10. [Amended] The heat engine as claimed in claim 7, wherein said shape further comprises at least one side of transparent material allowing said chamber to act as a solar collector.
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11. The heat engine as claimed in claim 1, wherein said expansion chamber is a plurality of materials.
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- 03 12. [Amended] The heat engine as claimed in claim 1, wherein said fluid is highly expandable.
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13. The heat engine as claimed in claim 1, wherein said heating side expansion chamber and said cooling side expansion chamber are diametrically opposed about the axis.
14. [Deleted]
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15. [Amended] The heat engine as claimed in claim 1, wherein said heating side expansion chamber and said cooling side expansion chamber are positioned about 45 degrees to 315 degrees apart.
- 04 16. [Amended] The heat engine as claimed in claim 1, wherein said means for shifting a weight is a first piston connected to said first wall and a second piston connected to said second wall that creates said off-center balance.
17. [Amended] The heat engine as claimed in claim 1, wherein said means for shifting a weight is a channel allowing flow of said fluid, from said heating side to cooling side, by expansion of said heating side chamber first wall and the contraction of said cooling side chamber second wall that creates said off-center balance.

18. [Deleted]

19. The heat engine as claimed in claim 1, wherein said cooling is from a plurality of sources.

20-38 [Deleted]

39. [Amended] A heat engine in combination:

- C5
- a) a plurality of heating side expansion chambers and cooling side expansion chambers, positioned on opposite sides of a circle, for expanding and contracting fluids;
  - b) a means for shifting a weight off-center balance when said fluids expand or contract, allowing gravity to rotate the apparatus about the axis of said circle;
  - c) a heat source for expanding said fluids;
  - d) a cooling source for contracting said fluids; and
  - e) a structure for supporting said expansion chambers, heat and cooling source, and providing an output motion in a particular direction from the rotation of said apparatus.

40. The heat engine as claimed in claim 39, wherein said heat is from a plurality of sources.

41. [Deleted]

42. [Deleted]

43. [Deleted]

44. The heat engine as claimed in claim 39, wherein said expansion chamber is a plurality of shapes.

45. The heat engine as claimed in claim 39, wherein said expansion chamber is selected from the group consisting of a flexible member, an elastic membrane, a diaphragm and a bladder.

46. [Deleted]

47. The heat engine as claimed in claim 39, wherein said expansion chamber is a plurality of materials.

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48. [Amended] The heat engine as claimed in claim 39, wherein said fluid is highly expandable.

49. [Deleted]

C7  
50. [Amended] The heat engine as claimed in claim 39, wherein said heating and cooling sides are positioned about 45 degrees to 315 degrees apart.

51. [Amended] The heat engine as claimed in claim 39, wherein said means for shifting a weight is a channel allowing movement of said fluid, from said heating side chamber to said cooling side chamber.

52. The heat engine as claimed in claim 39, wherein said cooling is from a plurality of sources.

53. [Amended] A heat engine in combination:

- C8
- a) a plurality of heating side expansion chambers and cooling side expansion chambers, positioned on opposite sides of a circle, for expanding and contracting fluids;
  - b) a means for rotating an element about the axis of said circle, when said fluids expand or contract, by using inward moving actuators radial positioned about said axis;
  - c) a heat source for expanding said fluids;
  - d) a cooling source for contracting said fluids; and
  - e) a structure for supporting said expansion chambers, heat and cooling source, said element, and providing an output motion in a particular direction from the rotation of said apparatus.

54. [Deleted]

55. [Deleted]

56. [Deleted]

57. The heat engine as claimed in claim 53, wherein said expansion chamber is a plurality of shapes.

58. [Deleted]

59. The heat engine as claimed in claim 53, wherein said expansion chamber is a plurality of materials.

60. The heat engine as claimed in claim 53, wherein said heating is from a plurality of sources.

C9 61. [Amended] The heat engine as claimed in claim 53, wherein said fluid is highly expandable.

62. [Deleted]

C10 63. [Amended] The heat engine as claimed in claim 53, wherein said heating side expansion chamber and said cooling side expansion chamber are positioned about 45 degrees to 315 degrees apart.

64. The heat engine as claimed in claim 53, wherein said element is selected from the group consisting of a cam, and a crank shaft.

65. The heat engine as claimed in claim 53, wherein said cooling is from a plurality of sources.

C11 66. [Amended] A heat engine in combination:

- a) a plurality of heating side expansion chambers and cooling side expansion chambers, positioned on opposite sides of a circle, for expanding and contracting fluids;
- b) a means for rotating a ring about the axis of said circle, when said fluids expand or contract, by using outward moving actuators radially positioned about said axis;

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- c) a heat source for expanding said fluids;
  - d) a cooling source for contracting said fluids; and
  - e) a structure for supporting said expansion chambers, heat and cooling source, said element, and providing an output motion in a particular direction from the rotation of said apparatus.
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67. [Deleted]
68. [Deleted]
69. [Deleted]
70. The heat engine as claimed in claim 66, wherein said expansion chamber is a plurality of shapes.
71. [Deleted]
72. The heat engine as claimed in claim 66, wherein said expansion chamber is a plurality of materials.
73. The heat engine as claimed in claim 66, wherein said heating is from a plurality of sources.
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- 012
74. [Amended] The heat engine as claimed in claim 66, wherein said fluid is highly expandable.
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75. [Deleted]
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- 013
76. [Amended] The heat engine as claimed in claim 66, wherein said heating side expansion chamber and said cooling side expansion chamber are positioned about 45 degrees to 315 degrees apart.
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77. The heat engine as claimed in claim 66, wherein said ring is selected from a plurality of materials.
78. The heat engine as claimed in claim 66, wherein said cooling is from a plurality of sources.

- C14
80. [New] The heat engine as claimed in claim 1, wherein said heat source and said cooling source are applied in such a way that substantially all of the induced weight shift is from a position between  $1^{\circ}$  and  $179^{\circ}$  relative to top dead center of the engine, to a position between  $181^{\circ}$  and  $359^{\circ}$  relative to top dead center.
81. [New] The heat engine as claimed in claim 1, wherein said heat engine can be made to rotate without application of external initiating torque.
82. [New] The heat engine as claimed in claim 39, wherein said heat source and said cooling source are applied in such a way that substantially all of the induced weight shift is from a position between  $1^{\circ}$  and  $179^{\circ}$  relative to top dead center of the engine, to a position between  $181^{\circ}$  and  $359^{\circ}$  relative to top dead center.
83. [New] The heat engine as claimed in claim 39, wherein said heat engine can be made to rotate without application of external initiating torque.
84. [New] The heat engine as claimed in claim 53, wherein said heat source and said cooling source are applied in such a way that substantially all of the induced weight shift is from a position between  $1^{\circ}$  and  $179^{\circ}$  relative to top dead center of the engine, to a position between  $181^{\circ}$  and  $359^{\circ}$  relative to top dead center.
85. [New] The heat engine as claimed in claim 53, wherein said heat engine can be made to rotate without application of external initiating torque.
86. [New] The heat engine as claimed in claim 66, wherein said heat source and said cooling source are applied in such a way that substantially all of the induced weight shift is from a position between  $1^{\circ}$  and  $179^{\circ}$  relative to top dead center of the engine, to a position between  $181^{\circ}$  and  $359^{\circ}$  relative to top dead center.

C14

87. [New] The heat engine as claimed in claim 66, wherein said heat engine can be made to rotate without application of external initiating torque.
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